
From the Editors

Rising energy prices in the 1970s triggered interest in using anaerobic digestion on U.S. farms to produce and use biogas from animal manures and resulted in the construction of several full-scale systems on commercial farms. Lessons learned during this developmental period (1975-1985) have resulted in improvements in design and operating parameters, equipment, and cost effectiveness.

The past decade has marked a period of significant expansion in the use of commercially proven biogas production and utilization systems by the dairy and swine industry. This growth in farm sector demand is due largely to improved technology and services, favorable renewable energy policies, federal and state incentive programs, and the “neighbor friendly” environmental advantages digester technologies provide as residential development expands in rural areas and regulatory pressures increase. There are currently about 70 animal waste digesters in operation on swine and dairy farms. Included are three centralized systems that provide waste treatment services to multiple farms. An additional 40 systems are in initial development stages and are planned to be operational in the next few years. These 120 systems have the potential to provide 25 MW of grid connected base load renewable energy while reducing greenhouse gases (methane) by about 40,000 metric tons per year—equivalent to 840,000 metric tons CO₂.

This handbook was developed to provide guidance for farms that are considering anaerobic digestion as a manure management option. When coupled with the use of FarmWare, the handbook is intended to provide a step by step methodology to assist users in making a preliminary technical, financial, and environmental assessment of a project’s feasibility, based on farm size, current manure management practices, energy use profiles, and technology choice. The handbook has been printed as loose-leaf pages in a ring binder. This format was chosen because it facilitates updating material to keep pace with an expanding industry and technology base.

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